2020

Improving Nursing Knowledge of Heart Failure Discharge Self-Care Instructions

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This is to certify that the doctoral study by

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Walden University
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Abstract

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MS, Walden University 2015

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Project Submitted in Partial Fulfillment

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May 2020

Abstract

Patients with heart failure (HF) have recurrent symptoms that lead to frequent hospital readmissions. Moreover, HF is one of the leading causes of 30-day hospital readmissions. Evidence shows that patients with a high level of HF self-care have decreased readmissions. HF self-care education is commonly delivered by the nurse at hospital discharge, and the patient's transition to self-care is a critical point in the continuum of care. However, nurses must be knowledgeable of patient self-care in HF to effectively convey this information to the patient upon discharge. Therefore, this staff education project question asked whether nursing knowledge of HF patient self-care improved with nursing education on HF patient self-care discharge education. This project's purpose was to show an increase in nursing knowledge of HF patient self-care discharge education. The situation-specific theory of HF self-care supported the project through the relation to self-behavior practices. 30 nurses from the local medical unit completed the project. Data to answer the project question was derived from pre-posttest assessment of nursing knowledge via the Nurses' Knowledge of Heart Failure Education Principles Survey tool and was analyzed via descriptive statistics of the difference between pre-post intervention data. Analysis of the data showed a 20% improvement pre-posttest in nursing knowledge of HF self-care discharge knowledge. The success of this project can be translated to further explore the impact of nursing self-care discharge education on HF readmission rates. The capabilities of the nurses to provide quality self-care education to HF patients can lead to positive social change by improving patient self-care knowledge, thereby improving outcomes and decreasing hospital readmissions.

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Dedication

In dedication to my loving mother for giving us life and making countless sacrifices. For my uncle who was my inspiration and strength.

This is for my husband, family and friends: I thank you for your support and love.

Acknowledgments

I would like to acknowledge Dr. Alphonsa Rahman, my mentor and advisor, and Director Maureen Archibald, for your assistance and guidance.

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Section 1: Introduction

Introduction

Heart failure (HF) is one of the leading causes of readmissions to the hospital, with an estimated cost of $30 billions of direct medical costs (Echouffo-Tcheugui, Bishu, Fonarow, & Egede, 2017). HF is unfortunately a common condition with numbers that continues to rise with the aging of the U.S. population (Echouffo-Tcheugui et al., 2017). Patients with HF have frequent symptoms. Self-care is an important part of the HF patient management, and reinforcing self-care education at hospital discharge can help patients to be aware of their self-care needs. Symptoms such as shortness of breath, pain, edema, and lethargy can be distressing for the patient, especially if they are not knowledgeable about how to manage their symptoms (Ekong, Radovich, & Brown, 2016). Self-care education is crucial for HF patients and an essential part of HF treatment (T. L. Mahramus et al., 2013). Successful patient education requires nurses to be knowledgeable about best practices, procedures, and medications (Evangelista & Shinnick, 2008). The American Heart Association (AHA) and Agency for Healthcare Research and Quality suggest that a patient-centered and multidisciplinary approach are significant for the patient's outcome. Patients with HF can benefit from receiving education of HF self-care management (T. L. Mahramus et al., 2013). However, not all HF patients are receiving such education. A study done by Albert et al. (2002) reported gaps in HF self-care identified by using a knowledge assessment tool for HF self-care. Nurses are at the forefront of educating patients, especially at discharge. Therefore, it is important that nurses to be competent in HF self-care education.

Problem Statement

HF is one of the main causes of hospital readmission of adults in the United States. About 6 million Americans are living with HF (Mathew, Rn, & Thukha, 2017). HF patients have high self-care needs to prevent symptom exacerbations, which can decrease quality of life. The incidence of HF is increasing due in part to lifestyle choices and failure to adopt healthy self-care behaviors. Patients should receive self-care education from nurses at discharge (Sundel & Ea, 2018). The practice problem therefore focused on educating nurses on HF self-care and improved nursing knowledge of self-care discharge patient education. According to the Institute for Healthcare Improvement, and the Agency for Healthcare Research and Quality, improvement in self-management education can decrease the number of hospital HF readmissions (T. Mahramus et al., 2014).

The significance of this doctoral project was that the knowledge of nurses in the practice facility, which was two medical units in a teaching hospital in Baltimore, Maryland, on HF discharge self-care was assessed and an HF education project was implemented. There was a lack of nursing standardization in HF self-care practices in both medical units. The project site benefitted from the study, nurses' knowledge was assessed, and education intervention was provided. Health literacy is a significant factor for patient outcomes, and a significant barrier to health literacy is the patient's limited resource for knowledge (Foraker et al., 2014). The objective of the program Healthy People 2020 was to involve social factors for health such as socioeconomic aspects and improved accessibility to health (Como, 2018). Nurses are first-hand educators for

patients, guiding them in proper self-care management and giving them instructions before discharge. The nurse's knowledge affects not only the quality of the content being delivered but also the degree of understanding the patient gains during discharge education.

The Centers for Medicare and Medicaid Services promoted a 30-day core measure to determine leading practices for treating HF and discharge education was an important area for improvement (New, Health, & Corporation, 2014). The Centers for Medicare and Medicaid Services requires hospitals to initiate standards of care to improve practice and reduce readmissions. According to the Centers for Disease Control and Prevention (2018), Maryland ranked 20th in 2015 with 11,390 incidences for heart disease-related deaths (Centers for Disease Control and Prevention, 2018). According to the Heart Disease and Stroke Statistics (2016), Maryland ranked 35th for coronary heart disease and 31st for cardiovascular disease. However, nurses can influence HF patient outcomes through improved patient education (Hastings & Felicia, 2012) to improve these statistics.

Purpose

Nurses influence patient readiness to make lifestyle modifications to enhance their quality of life (Kutzleb & Reiner, 2006). This project purpose was to show an improvement in nursing knowledge of how and what to deliver as health literate self-care discharge education for HF patients. There were significant gaps in nursing knowledge regarding HF self-care information as well as teaching principles for communicating HF self-care to patients in a medical unit in a teaching hospital in Baltimore, Maryland. The

medical units lacked standardization for teaching HF self-care practice. The data collected through the knowledge assessment survey of HF self-care practices benefitted the practice site. For nurses to encourage HF teaching, they must be able to expand their knowledge on HF principles. According to the Institute for Healthcare Improvement, to be able to promote transition of care from the acute setting to the home, there should be a focus on self-care HF education to reduce readmissions (T. Mahramus et al., 2014). The DNP project question asked whether an educational intervention program that targeted health literate HF self-care discharge would increase nurses' knowledge of HF and improve nurses' provision of HF self-care discharge education to patients as measured by a pre- and post-program survey. The outcome of this educational intervention was to increase the nurses' knowledge and confidence in caring for HF patients and therefore increasing patient outcomes, staff satisfaction, and retention (Hastings & Felicia, 2012). My goal for this doctoral project was to provide nursing education on HF to improve nursing knowledge of heart failure patient self-care management via discharge education. Evidence suggests that there is a knowledge gap with nurses regarding HF self-care (Ekong et al., 2016). Providing nurses with comprehensive knowledge of HF self-care together with constant reeducation may increase understanding and retention over time (T. Mahramus et al., 2014). Nurses with excellent expertise in HF self-care can effectively educate HF patients about self-management at discharge.

Nature of the Doctoral Project

This DNP project determined nursing knowledge practice gaps in HF self-care on medical units in a teaching hospital in Baltimore, Maryland. The presurvey, HF education

implementation, and postsurvey HF learning assessment were implemented. The presurvey questions were from the survey tool on nurses' knowledge of heart failure education principles by Albert and associates from the Cleveland Clinic (2002). The survey comprised 20 true or false questions to measure the nurses' knowledge of cardiac medication, management of symptoms, and diet for HF. There was a unit wide information campaign for the project, which was discussed during unit meetings where the nurses were invited to answer the presurvey questions online. The nurses' demographic questions included with the survey comprised the number of years in nursing practice, age, education level, and gender. The answers were obtained using a web-based online presurvey tool that nurses accessed. Scores were calculated for individual responses and also as a total for all the nurses taking the survey. The HF education utilized the AHA Get with the Guideline HF Clinical Tools, which are educational resources for nurses (AHA, 2019). The educational program comprised HF self-care education on standardized practices on cardiac medication, symptom management, weight management, and diet. After the class, the nurses answered the postsurvey questions, which were the same as the presurvey questions. Data from the pre- and postsurvey were then compared and analyzed using SPSS to determine if the intervention was effective. Nurses' substantial knowledge in HF self-care practices promotes patient adherence to treatment (Evangelista & Shinnick, 2008). Nurses serve as educators for HF patients. The purpose of the doctoral project was to improve the knowledge gaps in HF self-care and education skills of the nurses. HF self-care was one

of the primary concerns to reduce readmission and increase the quality of life of HF patients.

Significance

The stakeholders for this project were nurses, nurse educators, and patients in the practice site, which was two medical units in a teaching hospital in Baltimore, Maryland. The project focused HF treatment HF self-care education to decrease the number of hospitalizations. Developing a multidisciplinary approach in treating the patient may aid in reducing HF readmissions (Albert et al., 2002). The main goal for the project was to increase nurse HF knowledge through education and therefore create effective HF self-care patient educators. HF affects 5.8 million in the United States; the nurse is the principal educator for patients with HF (Ekong et al., 2016). The doctoral project can be implemented for other chronic diseases such as COPD, diabetes, hypertension, and stroke. The use of a presurvey determined if there were nursing knowledge gaps. Education was implemented, and postsurvey data was collected to answer the project question. The significance of this project was that it could improve nursing knowledge in HF self-care practices and self-care patient education to promote health literacy in the community by improving discharge self-care instructions.

Summary

In the United States, HF affects almost 5.8 million Americans, and this number will continue to rise by 46% by the year 2030 (Dordunoo et al., 2017). HF readmissions lead to higher cost of care, and this is a significant concern in the health care system (Echouffo-Tcheugui et al., 2017). HF patients must have sufficient education about self-

care behaviors before being discharged. Studies have suggested that there was a gap in nurse's knowledge in HF self-care practices (T. L. Mahramus et al. 2013). Nurses must have expertise in teaching patients self-care to provide successful patient education at discharge. This project focused on nurses' knowledge of self-care behavior and discharge education for HF patients. The project identified nurses' knowledge using a presurvey to determine if there were nursing knowledge gaps, implemented an HF education program, and conducted a postsurvey assessment to reveal whether the knowledge gaps could be closed (see T. Mahramus et al., 2014). HF nurses should be experts in HF self-care practices and competent HF patient educators. Successful patient outcomes through nurse education ultimately can decrease healthcare expenses by reducing the number of HF readmissions due to failure to comply with self-care management (Almkuist, 2017). The next section explores literature presenting evidence that nursing knowledge of HF patient self-care practices should be addressed to promote positive patient outcomes. In Section 2 I present the purpose of the doctoral program and discuss concepts, models, theories, and terms. Included in the Section 2 are explanations of the relevance to the nursing practice and the roles of the DNP student and each team member.

Section 2: Background and Context

Introduction

Hospital readmissions for HF are one of the leading causes of high levels of hospital usage. The project question asked whether nursing knowledge of HF discharge instructions and self-care education improved with an educational intervention program. This doctoral project supported nurses in delivering evidence-based self-care knowledge and practices for providing adequate health literacy for HF patients. A study conducted by T. L. Mahramus et al. (2013, p. 1), stated that "nurses have knowledge deficits of self-care concepts." The study used the Nurses' Knowledge of Heart Failure Education Principles Survey (NKHFEP), a measurement tool that is used to assess the nurses' knowledge of HF practices (Sundel & Ea, 2018). This section includes the nursing practice model, local background and context, role of the DNP student, the role of the team, and a summary. The purpose of my project was to determine any knowledge gaps for HF self-care practices in two medical units. This project utilized a nurse-guided approach for patient education, lifestyle modification, and management of symptoms to improve the quality of life of HF patients. Nurses recognize early signs of HF exacerbation and understand mitigating self-management regimens, which are important for patient education.

Concepts, Models, and Theories

The primary purpose of the project was to improve the nurses' knowledge of HF self-care management and patient discharge education. For nurses to promote self-care practices, they must be experts in assessing the patient's knowledge of self-care

strategies such as managing symptoms, determining a treatment plan, and identifying the patient's effectiveness with self-care. The nurse's ability to confirm patient self-care behavior by recognizing patient knowledge deficiencies in controlling stress, dealing with symptoms, and medication management is significant for patient self-care. Therefore, the situation-specific theory of HF self-care was used to support this project. The situation-specific theory was first published in 2008 by Riegel, Dickson, and Faulker in relation to self-behavior practices (Riegel, Dickson, & Faulkner, 2016). Self-care practices involved three processes: maintenance, symptom perception, and management (Riegel et al., 2016). For the maintenance process, the patient is involved in self-care routines such as nutrition, exercise, and their medication regimen. Symptom perception identifies signs that affect their health and daily living. Management refers to patient involvement, which is crucial because HF patients need to act on symptoms they perceive, such as shortness of breath (Riegel et al., 2016). The situation-specific theory of HF self-care served as a framework for educating nurses about HF. This theory influenced the program by establishing standardization of the education for increasing nursing knowledge of HF self-care management (Riegel et al., 2016). Nurses are patient educators in most clinical settings, and implementing patient education goals and assessing patient learning needs are essential to patient care.

The clinical educator facilitates transition from theory to practice. The clinical educator is responsible for staff development and implementing evidence-based practice (Coffey & White, 2018). The nurse manager is responsible for staff retention, safety, and quality and strives to promote a positive organization. The nurse manager is essential in

determining positive patient outcomes (Pilat, 2019). The hospitals revenue was measured through quality metrics and should follow the highest standards (Karim, Reiter, Holmes, Jones, & Woodard, 2018).

Relevance to Nursing Practice

Patients with HF make decisions about their health based on their experience, also called naturalistic decision-making (Riegel, Dickson, & Topaz, 2013). There was a possibility that HF patients had difficulty recognizing symptoms, which, without proper intervention, would lead to readmission (Riegel et al., 2013). It is vital to assess the nurse's knowledge of HF self-care principles and the level of their understanding. HF patients have a complex disease that needs comprehensive management and education. Nursing knowledge directly affects performance and confidence in the workplace (Sundel & Ea, 2018). It was essential for nurses to acquire knowledge of HF self-care to be competent when educating HF patients. At the project site, there were concerns about patient education processes and standardization in practice. There was no specific process of educating patients on timely weights or proper measurement or documentation of fluid intake. There was no teach back protocol or patient education format at the project site. Knowledge of medications, standardization in weighing, and diet were some of the gaps in nursing practice regarding HF self-care. Teaching patients to care for themselves leads to consistency in healthy behavior choices (T. Mahramus et al., 2014).

Nurses knowledgeable in self-care principles were effective in providing self-care education for HF patients. In 2008, Kaiser Permanente devised an HF patient-centered bundle comprising home care, ambulatory care, and inpatient multidisciplinary

interventions (Rice, Barnes, Rastogi, Hillstrom, & Steinkeler, 2016).This patient-centered care focused on the hospital to home transition. It identified patient satisfaction rates, reduced readmissions, and reduced time for follow-up appointment scheduling. Patient education required consistency from admission through the hospital stay and when the patients were discharged to their homes (Rice et al., 2016). Kaiser's process has been an example of continuity of care from the acute hospital setting until transitioning to home and then follow-up in the primary setting. The gaps in knowledge and practice were lessened, and standardization of practice was applied. That knowledge was passed on from the teachings of the nurse in the hospital to post-acute care facilities, home care nurses, family, and the patients themselves. Nurses with comprehensive knowledge of HF self-care reinforced this knowledge to patients. HF exacerbation is one of the leading causes of hospital readmissions (T. Mahramus et al., 2014). One of the main factors that affected HF patient readmissions was the patient's adherence to HF self-care practices. Some interventions required a sophisticated approach which included lifestyle changes, laboratory monitoring, diet control, and medication compliance. Self-care was effective in reducing mortality rates and improved patient outcomes (Gonzaga, 2018). HF patients who are well informed have lesser chances of hospital readmissions or decreasing the length of stay, which reduces costs and results in a positive quality of life outcome . Educating nurses in HF self-care management practices was therefore relevant to nursing practice.

Local Background and Context

The project site was a teaching hospital in Baltimore, Maryland, with 179 bed capacity. The areas where the project was conducted were the Med A and Med B units. Both medical units admit patients who are diagnosed with infectious diseases or heart, kidney, endocrine, or vascular problems. There are patients in these units who are placed on observation for 24 to 48 hours to determine diagnosis or readiness for discharge. The facility was selected because of the accessibility of HF patients in the surrounding communities with aging populations. The medical units lacked standardization of practice with HF patients. Heart disease is the leading diagnosis with hospital discharges in the United States (Mozaffarian et al., 2016). HF patients numbers are projected to increase by 2030, and the estimated cost of hospital readmissions will be about $60 billion (Dordunoo et al., 2017). Heart disease is among the top leading cause of death in the United States (Murphy et al., 2018). HF greatly affects the patient's daily quality of life and the risk of readmission is high. Self-awareness and self-care are essential for HF patients to decrease readmissions. Self-care is significant in an individual's health outcome through recognizing and performing actions supporting their well-being. There were existing programs in the state of Maryland to target HF patients such as at-home monitoring, heart disease prevention resources with specific guidelines, and social media campaigns (Maryland Department of Health, 2014), but nurse competency through education, standardization in practice, and disease management were vital for improving patient outcomes.

HF patients require self-care education after discharge from an acute care facility. Self-care education and follow up are crucial to the patient's improved outcome. This includes medication management, exercise, identifying early signs of symptom exacerbation, dietary changes, and fluid intake. HF patient readmission is a quality indicator for Medicare reimbursement. The United States spends $15 billion on readmissions annually (Mathew & Thukha, 2017). HF is a common diagnosis for readmission. Patient knowledge in maintaining a healthy lifestyle, recognizing symptom exacerbation, managing medications, and maintaining follow-up appointments with their physicians are important and can be affected by the quality of nursing education (Mathew & Thukha, 2017). However, most nursing orientations focus on the delivery of care, procedures, and policies with limited focus on standardization of practice in patient education.

Role of the Doctor of Nursing Practice Student

My role in the doctoral project was aimed on educating and disseminating self-care techniques to staff nurses in a medical unit of a teaching hospital in Baltimore, Maryland. Both medical units have increased number of HF patients due to the growing number of patients with HF. This project was beneficial for nurses to develop their knowledge in HF self-care practices. The United States aging population is increasing and many patients have HF. Symptoms of HF decreases the quality of life and contributes to frequent hospitalizations. Patient ability to self-care was an important aspect of improving patient outcomes (Grafton & Cohn, 2017). My background as an emergency room nurse, emergency room case manager, and home care intake coordinator identified

low self-care knowledge for HF patients as one of the leading causes of increase readmissions in an acute facility. HF readmission was decreased through self-care education. The goal of this project was to engaged the nursing staff, improved their knowledge in promoting HF self-care techniques, and standardization in practice. Nurses increased their knowledge in HF self-care and improved their competency in delivering education to HF patients (Albert et al., 2002). There was limited literature on nurse's knowledge of HF self-care practices. Increased HF knowledge in nurses improved their competency in patient education practices. According to Centers for Disease Control and Prevention, the expenditure for HF increased to about $3 trillion with 37% of the cost in inpatient care and 18% on hospital readmissions within 30-days (Shah, Forsythe, & Murray, 2018).

My role in this doctoral project was directed on promoting self-care education to staff nurses in the medical units. The goal was to assess the nurses understanding of HF practices, become involved in improving their knowledge in HF self-care techniques and standardization in practice. It was important that nurses know about teaching self-care to HF patients at discharge; this was integral to their patients' health outcome. HF is a debilitating disease that would have a tremendous effect on a person's life. Learning and understanding HF patients' self-care influenced the improvement in their life. The motivations for this doctoral project were to impart knowledge to HF patients and improve quality of life. HF patient confidence in self-care affected their process and management of their disease. Exploring alternatives and solutions for self-maintenance, was just one step in the process for HF patients acknowledging their disease. Retaining

self-care as a habit, and part of their normal behavior was a challenge. Nurses were influential to the patients' behavior and practices in the hospital, therefore increased in competency and understanding HF self-care practices impacted the patients' behavior and choices. Nurses have extensive knowledge towards HF patients effectively encourage self-care behavior.

Role of the Project Team

A project team was used in this project. Their main role was promoting nurse education on HF self-care practices. Nurse educators determined evidence-based knowledge and applied improvements in nursing practice. The nurse educators assisted and facilitated in disseminating standardization of practice during the education intervention. Clinical staff nurses implemented evidence-based HF self-care practices and improved patient outcomes. The nurse managers encouraged staff nurses to participate in answering the pre-survey, education intervention and post survey. Nurse managers were essential for nurse engagement, continuous communication with the staff, identifying issues, and recognizing probable knowledge gaps.

Initially, nurse managers determined the rate of the readmission data for HF patients and recognized protocols used in the medical unit for HF patient teaching. The clinical manager, therefore, was concentrated in the planning and maintaining the performance of the team. Clinical nursing staff role was to implement HF self-care practice teachings to the patients after going through pre-test survey, education, and post-test of HF self-care practices. The clinical nurse manager was concentrated on tracking on development for each team member and determines competency and qualifications on

each nurse to be able to care for HF patients. Nurse educators facilitated in educating staff nurses by using evidence-based practices in HF self-care practices such as medication management and lifestyle changes. Nurse educators connected theory into practice by teaching the staff nurse on policies and standardization in practice for HF patients. The staff nurses were responsible for assessing the patient's knowledge for HF self-care during admission and particularly when discharging. Their knowledge in teaching HF self-care influenced the patient symptom management and behaviors of HF patients. Nurses were forefront in determining patient's knowledge on self-care practices.

The timeline for the project varied due to the limitation on the nurse's schedule to attend class and one to one interaction, but it was projected to be finished in 3 months. The nurse educator examined different HF self-care theories, and evidence-based practices that was suited for the medical unit, and took at least two weeks. The online pre-assessment survey took 15 mins per participant to finish. The nurse educator conducted classes over one month including the post-assessment survey assessments. The classes were focused on HF self-care principles on medication, diet, and standardization in self-care practices. Nurse educators and nurse managers coordinated the schedule for the nurses on when to attend the classes and disseminated the program with the nurses during staff meetings and one on one sessions.

Summary

HF affects over 6.5 million Americans and this number is growing with about 960,000 cases annually (Como, 2018). HF patient readmissions stems from poor discharge planning, insufficient patient education and non-adherence (Mathew &

Thukha, 2017). Nurses led an initiative in promoting health literacy to have an effective patient outcome. Nurses recognized that a lack of knowledge in HF self-care education that can lead to giving the patient inaccurate information. Standardization in practice from an acute setting to home was influential to the patient self-care behavior. Reduced HF patient readmissions by recognizing best practices, assessing the nurse's knowledge on HF self-care behaviors and facilitate improvement through education was the purpose of this project. Nurses were educated on HF self-care practices, strengthens their competency and increased their confidence towards their practice. Section 3 discusses the literature review, sources of evidence, analysis and synthesis.

Section 3: Collection and Analysis of Evidence

Introduction

HF is one of the primary causes of hospital readmissions in the United States, accounting for more than 6.5 million hospital days annually (Foraker et al., 2014). HF is a chronic disease that has complex lifelong demands. Section 3 specifies the sources of evidence, the use of archival and operational data, study procedures, and analysis of the findings on HF. The evidence showed nurses' knowledge gaps regarding HF patients' self-care practices (Ekong et al., 2016). The practice problem was that there was a nurse knowledge gap regarding self-care practices for HF patients. Nurses who have best-practices knowledge about HF self-care effectively teach patients at discharge (T. Mahramus et al., 2014). This project plan was to improve nurse communication of self-care practices to HF patients.

Practice Focused Question

HF is a costly disease that adversely affects the aging population in the United States. The population with HF is about six million Americans, and that number increases annually (Como, 2018). HF patient standardization of care from admission through to post discharge has had a beneficial effect on treating the disease process. Developing policies from the evidence-based practices for HF self-care management, especially as delivered at discharge, positively influences the patient's transition from the hospital to the community. Nursing education at patient discharge improves the HF patient self-care knowledge (Ekong et al., 2016). Therefore, this staff education project question asked whether nursing knowledge of heart failure discharge instructions improved with an

educational intervention program that targets health literate HF discharge self-care education practices for nurses. The project purpose was to improve nursing knowledge of health literate delivery of HF discharge education. The gaps in nursing knowledge regarding HF self-care education in the project setting was nurses lacked quality educational strategies for communicating self-care practices to HF patients at discharge. For nurses to be proficient at HF education, nurses must be able to expand their own knowledge of HF self-care and educational principles.

Sources of Evidence

This DNP project was based on evidence from the literature supporting the need for improved HF patient self-care through increasing the nurses' knowledge of HF self-care to be communicated at discharge. The review of operational data was conducted using nurse's knowledge of heart failure education principles as indicated by pre- and posttest surveys. An evidence based educational intervention was delivered prior to posttest. Discussions on medication management, health literacy, teach-back method and HF discharge self-care patient education was included with the education intervention. Participants completed the survey prior to and following the intervention, including demographic information and program satisfaction responses.

Patients with HF require self-care teaching because their symptoms can be self-limiting. Patient adherence to self-care practices such as medication, diet, and regular exercise improves patient outcomes. According to Mathew and Thukha (2017), patients discharged from any clinical setting without proper teaching may be more likely to be readmitted to the hospital and have higher instances of mortality. In the project facility,

HF teaching was verbal, provided by the nurse with printed materials, medication management tools, and weighing devices. Although these were the practices, outside studies have suggested that nurses were not prepared to teach HF self-care principles to patients and their family (Roussel, 2015). The Healthy 2020 objectives concentrated on socioeconomic factors, healthcare accessibility, and health literacy to reduce HF readmission (Como, 2018). The patient's ability to recognize any physical symptoms that can interfere in daily living possibly can be addressed by the patient early on to prevent symptom exacerbation. Self-care knowledge and identifying symptoms early is an important part of HF care.

Published Outcomes and Research

The nursing databases used for the research project were CINAHL & MEDLINE Combined Search, ProQuest Nursing & Allied Health Source, PubMed, and Ovid Nursing Journals. I used keywords *heart failure, self-care, teach-back, nurse knowledge,* and *health literacy* in the search. I found 45 articles related to HF; 25 articles were used for the project. The criteria for selecting the articles were that they were (a) in English, (b) peer reviewed, (c) systematic reviews, and (d) published between 2010–2019. The search articles covering HF self-care practices included information on evidence-based methods, nursing education, self-care model, HF readmissions, HF admission costs, and patient literacy.

This DNP staff education project’s main objective was to assess and improve nurses’ knowledge of HF. HF patients in the community were frequently readmitted to the hospital because of limited resources and lack of self-care knowledge (Gonzaga,

2018). A study conducted by T. Mahramus et al. (2014) used the Nurses' Knowledge of Heart Failure education Principles Survey to identify that nurses have knowledge gaps for HF care strategies. The study results found that in the evaluation of fluid status, medication management, symptom management, blood pressure management, and parameters of when to call the medical providers , there were gaps in the nurses' knowledge. At the project facility, the learning needs of nurses in the medical unit were assessed as a first step in identifying areas where education was needed. There were about 250 nurses who answered the survey with a mean score of 65.1% pretest and 80% posttest; this concluded that there were HF self-care knowledge deficiencies (T. Mahramus et al., 2014). DNP prepared nurse implemented educational sessions for HF knowledge principles using teaching strategies such as teach-back and lecture and including health literacy issues reinforced HF competencies. This project aimed to strengthen nursing knowledge of HF self-care patient education for discharge.

Readmissions are measured by The Centers for Medicare and Medicaid Services to determine patient outcome (Almkuist, 2017). HF is one of the diagnoses for which a 30-day readmission rate is measured. Hospitals with excessive readmission rates are sanctioned (Sundel & Ea, 2018). Decreasing 30-day readmission has a significant impact in the care of chronically ill patients. Educating nurses improved nursing knowledge in HF self-care practices to effectively educate patients. Quality patient education upon discharge increases patient satisfaction, reduces medication errors, and decreases noncompliance (Ekong et al., 2016).

Teach back (TB) is a technique that nurses learned in the HF education program. It is used to measure or assess knowledge by asking patients to explain it in their own words after the teaching intervention (Almkuist, 2017). The objective is to assess the learners' understanding. According to the Institute for Healthcare Improvement (2014) and the Agency for Healthcare Research and Quality, TB is considered a best practice in transitioning the patient from the hospital to their home environment. The Agency for Healthcare Research and Quality stated that TB was crucial in patient safety practices for developing patient knowledge (T. Mahramus et al., 2014, p. 205). TB encourages and raises patients' awareness of self-care practice (T. Mahramus et al., 2014). Nurses encouraged patients to communicate their concerns and identify patient's knowledge during admission through TB.

The economic cost of HF to the U.S. health care system in 2012 was about $39 billion for hospital admissions (Ekong et al., 2016). Medicare beneficiaries who continually take their HF medications annually save about $2.6 billion (Ekong et al., 2016). A study done by Foraker et al. (2014) using statistical data from 1987 to 2005 showed that the mean length of stay for HF patients is about 8.3 days. The atherosclerosis risk in communities cohort study associated socioeconomic status with HF patient readmission as well. Patients with fewer resources have increased incidence of HF complications (Foraker et al., 2014). The atherosclerosis risk in communities cohort study presented that Medicaid patients have more complex HF management that causes longer length of stays compared to patients with greater socioeconomic stability. Patient self-care behavior was based on different factors that stemmed from the environment, family

dynamics, health care system, resources, and lifestyle choices. Patients' compliance with self-care practices occurs from admission, during hospitalization, at discharge, and during transition into the community. Certain practices such as monitoring salt intake, daily weight monitoring, measuring fluid intake, medication management, and recognizing any symptom changes were some of the self-care practices that were reinforced to HF patients during admission (Alspach, 2011). Multidisciplinary rounding was influential because this allowed the staff to identify and address any patient issues for staff accountability (Albert, Sherman, & Backus, 2010). HF patients often have difficulty accepting their disease and ignore their symptoms, which leads to a hospital admission. These patients may have a minimal understanding of the disease and may not have any supervision from a health care provider (Roussel, 2015). Using a multidisciplinary approach and developing an HF clinical pathway improves patient outcome. Decreasing readmissions was possible by having a robust transitional care team, well-educated nursing staff, and physicians who are determined to provide evidence-based practice. Improved nursing knowledge of HF was one link in the chain of better outcomes.

Evidence Generated for the Doctoral Project

Participants

Participant nurses were invited from the two medical units. The nurses were between the ages of 21-65 years of age. There were 39 nurses that finished the pre-test and total of 30 nurses finished the post-test. The relevance of these participants to the practice-focused questions was to determined that the intervention increased their knowledge in HF self-care practices. Both units have specific standardized practices for

HF patients. The practices were essential to the HF patient in transitioning to the community after discharge.

Procedures

After receiving facility Institutional Review Board (IRB) approval number11-27-19-0324890, the project began by presenting sign-up sheets for participation with the HF study in a teaching hospital in Baltimore, MD. Interested participants who signed up were sent a link through their email, that obtained consent and provided a link to the pre-knowledge survey. The pre-knowledge survey was offered for two weeks. The participant's demographic data was collected and identities were anonymous. The pre-knowledge survey was conducted via Survey Monkey. After the educational intervention, the post-knowledge survey was provided to participants and completed after the educational program. Comparison of the group scores collected from the pre-test and post-test was compared and the outcome determined. Collected data from the participants were entered in the password locked secure database and analyzed using SPSS.

The AHA Heart Failure Guidelines Toolkit was used for the educational program for the project (AHA, 2017). The 30 min HF education conducted by this author multiple times over a two-week period in the Med A and Med B conference rooms, conveniently during breaks and unit meetings. Post-tests comprised the same questions from the pre-test. The post-test was completed right after the education intervention. Each participant attended the education intervention prior taking the post-test.

The pre and posttest tool used was the NKHFEP, which was a 20-item true-false test that was developed by Albert et al. (NM et al., 2002). The survey tool was purchased

with the author's approval for use. There were five types of content from the survey, exercise, diet, fluid and weight, signs and symptoms and medications. The survey depicted any gaps in knowledge and was crucial, especially when conducting HF teaching to the patient (Washburn, Hornberger, Klutman, & Skinner, 2005). Maintaining low sodium diet, assessing weight gain, controlling blood pressure, medication review and exercising were critical in-patient education. The instrument was used in a study in 2007 for a large acute care hospital in the Southeastern United States.

TB strategy was taught in this project as it was used to determine any learning need of the patient which can easily be reformed (T. Mahramus et al., 2014). Patients comprehension and understanding of their disease decreased the possibility of readmission by 30% and was recognized by the National Quality Forum as a primary way to determine patients understanding (Almkuist, 2017). In the TB process, questions were asked, and the patient explained self-care practices in their own words to validate their knowledge(Almkuist, 2017). Clarifications were made in the process if patients had issues. Nurses assessed HF patient's knowledge gaps by identifying possible issues that may occur from attending to symptoms and taking actions to have positive outcomes. The process of patient education suggested that with learning needs assessment, both patients' subjective and objective data were collected to determine the patients' willingness to learn. Subjective cues were patients background, literacy and age (Flanders, 2018). TB helps patients make informed decisions in lifestyle behaviors, diet and medication management. TB method had a positive influence on the patient's comprehension for self-

care practices, thereby improving compliance and reducing the number of HF readmissions.

Ethics

The respondent's information was confidential using an online survey tool. Participants can choose to withdraw anytime from the survey. Nurse educators effectively scheduled staff meetings regarding new standardization practices and for competencies. The DNP student disseminated information about the survey during staff meetings.

Materials with the name of the organization was not be used to protect the organization identity. To increase the confidentiality there was no data of any type that was used to identify the organization. All data received for the secondary data analysis was stored in a password protected database for 5 years. This author was the only person with access once deidentified data was entered. Consent was indicated when the participant attended the educational program, and was conveyed in the program information. Walden IRB and facility approval were obtained before any project related activities began.

Analysis and Synthesis

This project employed a one-group pretest/posttest design using descriptive statistics via percent difference analyzed data to answer the project question. Demographic data was collected as well to characterized the project participants although no protected health information was collected. Survey monkey was used to obtain pre and post surveys and collected project outcome data. Deidentified data collected for this project was given to the manager for use in a project secondary data analysis. Analysis of

pre-survey and post-survey data via SPSS was used to determine the effectiveness of the education intervention. The average score for the pre-test and posttest was calculated by the sum of all scores and divided by the number of nurses that took the pre-survey. Then the scores were subtracted to determine the project results. The survey results indicated any learning needs through question ranking and which questions had the least number of correct answers and was focused on in the education intervention.

Summary

The nurse's lack of knowledge of HF self-care practices and variation of the process was a barrier for nurses when teaching patients. The goal for this program was to engage nurses in education, promote patient education, and improve nursing knowledge. Key measures of the project were the results of the Nurses Knowledge of Heart Failure Education Principles Survey. Section 4 discusses result findings, limitations, the implication of HF self-care practices, promote positive social change and proposed recommendations for solutions to the gap-in-practice.

Section 4: Findings and Recommendations

Introduction

Heart failure affects 6.5 million Americans, with an estimated increase of 3 million new diagnoses by 2030 (Como, 2018). Nurses have a significant impact on patients' health through patient education at hospital discharge when transitioning to home (Ekong et al., 2016). Patients with sufficient knowledge in self-care practices less likely to fail to adhere to recommendations and experience symptom exacerbation. HF is a chronic disease that requires lifestyle adjustment and symptom management. Patient education has been an important key to guide patients with adherence to self-care recommendations and understand specific symptoms (Albert, 2016). This project was concerned with educating nurses on HF self-care practices to promote nursing knowledge of patient self-care at discharge. There was a nursing knowledge gap on HF self-care practices in the hospital medical units. The practice-focused question asked whether nursing knowledge of HF discharge instructions improved with an educational program. The purpose of this project was to strengthen the nurse's knowledge of HF self-care practices.

Evidence of nurses' knowledge of HF education principles were collected online from SurveyMonkey prior to an educational intervention and via a hardcopy survey following the intervention. Nurses were given access to the online presurvey using a link that was sent through their e-mail. The online survey was open for 2 weeks. The education intervention was initiated 2 weeks after the presurvey data collection. The education intervention included information on discharge education and HF self-care

practices including lifestyle, nutrition, and medication management. HF is a chronic disease that affects patients' well-being and overall quality of life. Therefore, the education intervention was targeted to assist in improving nursing knowledge of communicating HF self-care information at patient discharge. Postintervention data was collected immediately after the intervention. Pre- and postsurvey data was compared as percentage differences to answer the project question.

Findings and Implications

HF is a chronic disease that often requires measures to improve disease management and self-care practices. The location of the study was a teaching hospital in Baltimore, Maryland. The patient population included patients with chronic diseases such as pulmonary disease and hypertension. The participants for this project included staff nurses in two medical units who care for and routinely provide discharge education to HF patients. There were 39 participants presurvey and 30 participants postsurvey. There were 33 female and 6 male participants for the presurvey.

Table 1

Scores for Presurvey

	Frequency	Percent
Female	33	84.6
Male	6	15.4
Total	39	100

Table 2

Scores and Percentage Postsurvey Descriptive Statistics

	Frequency	Percent
Female	28	93.3
Male	2	6.7
Total	30	100

The education intervention tool used to collect the data was the NKHFEP. The NKHFEP is a 20-item tool with yes (true) or no (false) designed by Albert et al. (2002). Every correct answer is equivalent to one point. Several topics are covered by this tool, including nutrition, medication, lifestyle choices, and signs and symptoms of HF exacerbation. This tool was developed to support nurses in symptom management and disease process. The pretest was administered online using the NKHFEP to collect the data. The posttest was done using a paper questionnaire also using the NKHFEP tool. The IBM SPSS tool was used for statistical analysis. Categorical variables were used for frequency distribution and percentage distribution.

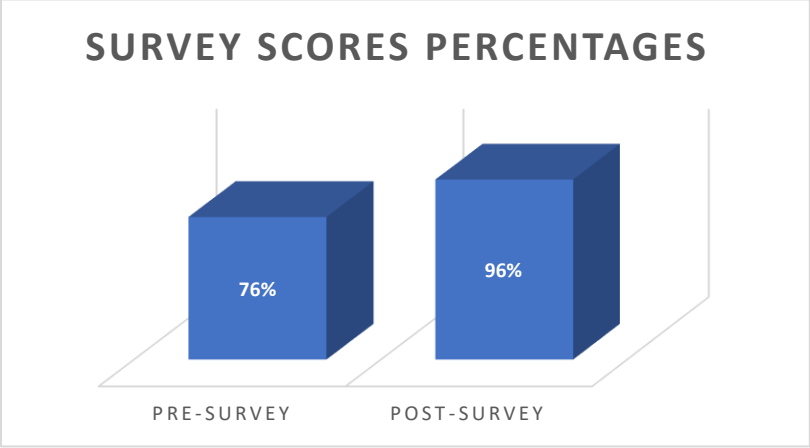

Figure 1 *Presurvey and postsurvey scores.*

The results revealed the average percentage score for presurvey was 76% (*n* =39). The 39 participants who answered the presurvey questions had a 15 out of 20 average score. In the presurvey the question with the lowest score was, “BP recording of 80/56 without any heart failure symptoms,” with only an average score of 18% correct. The second lowest score was for question “when assessing weight results, today’s weight should be compared with the patient’s weight from yesterday, not the patient’s ideal or dry weight," with a 28% average score. The question regarding “dizziness or lightheadedness when arising that disappears within 5 minutes” had an 46% average correct score. The percentage ranking identifies which areas the participant need to focus on and review. The top three highest scores for questions on the pre-survey had a score of 100% and included the questions, “new onset of worsening leg weakness or decreased ability to exercise, patients with HF should drink plenty of fluids each day.” This conveys that the nurses had gaps in symptom knowledge and assessment but were knowledgeable with standardization of HF practice.

The average percentage score for Post-Survey was (*n*=30; 96%). The staff education project question asked whether nursing knowledge of heart failure discharge instructions improves, and the results showed a 20% increase in the post-test score. The participants had a notable increase in scores for the post-test. The 30 participants that answered the post-survey questions had an average of 19/20 correct scores and this was about four percent higher than for the pre-test. Out of the 20 questions for the post-test 10 questions had 100% average score, showing that the education intervention was effective. Reinforcing knowledge, continuing education, and staff development are essential for a

nurse's professional growth. Education is fundamental for any type of chronic condition that can affect readmissions (Sundel & Ea, 2018). This project indicates that nurse education is important to positive patient outcome.

Table 3

Showing Years in Practice

Years in practice	Presurvey		Postsurvey	
	Frequency	Percent	Frequency	Percent
0-5 years	18	46.0	11	37.0
6-10 years	3	8.0	1	3.0
11-15 years	5	13.0	5	17.0
16-20 years	4	10.0	4	13.0
20 < years	9	23.0	9	30.0
Total	39	100.0	30	100.0

The NKHFEP tool was effective in determining the participant knowledge on HF self-care. To ensure participants completed the pretest and posttest, I used a signup sheet was used to verify that each participant who completed the pretest and attended the educational program also completed the posttest. However, nine participants completing the pretest were not able to participate in the education intervention due to schedule challenges. The education intervention was conducted before shift change, and many night shift nurses were reluctant to stay and participate.

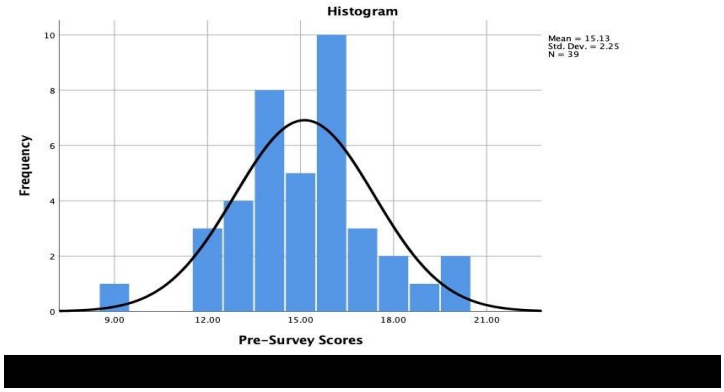

Figure 2. Presurvey scores show a wider distribution in the test scores.

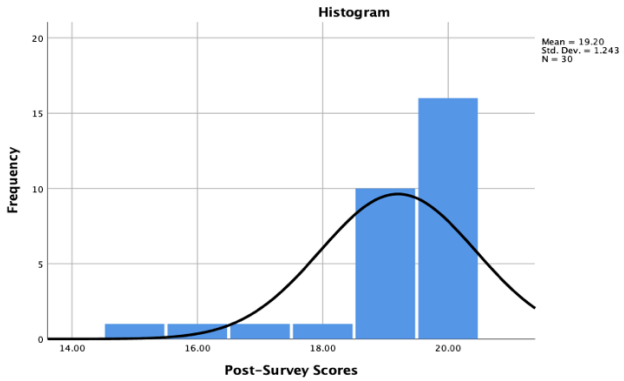

Figure 3. Postsurvey scores show a narrow distribution in the test scores.

Nurses' knowledge in HF self-care practices is important in improving HF self-care discharge information. Patients need support and guidance from health care professionals related to managing symptoms, diet, lifestyle choices, and maintenance (Ekong et al., 2016). In 2010, HF was the leading cause of readmission in the United States with over 1 million hospitalizations (Dordunoo et al., 2017). Among Medicare

beneficiaries, HF patients have the highest readmission rate of about 26% (Dordunoo et al., 2017). Nurses are influential in promoting patient knowledge of self-care practices.

Nurses HF self-care education is beneficial and necessary for improving patient outcomes and reducing readmission. This project indicated that further review of current studies on self-care practices may benefit the institution through broadening the study sites and adding more knowledge-based tests on other chronic diseases. Educational programs for nurses are valuable for maintaining up-to-date knowledge of HF patient self-care practices. Continuing education for nurses provides benefits of possibly bringing about a reduction in HF readmissions and improving patient outcomes. Improved HF discharge education of patients in HF self-care practices may support patient adherence. Going forward it would be beneficial to have more participation in interventions using evidence-based research in a different setting in the system such as outpatient clinics and patient home visits.

Recommendations

Educating nurses on HF self-care practices is crucial for positive patient outcome (Kutzleb & Reiner, 2006). Participant scores improved after the education intervention indicating that this focused educational intervention was effective. Nurses that gained knowledge with HF self-care may therefore improve patient discharge self-care practices. Reinforcing HF self-care practices and concepts during annual competencies may also be beneficial for nurse continuing education (Sundel & Ea, 2018). Additionally, a follow-up HF knowledge assessment survey a few months after the education intervention would be beneficial to determine if the knowledge was sustained. Recommendation for further HF

self-care practice would include using AHA High-Risk HF Patient Identification Checklist and Self-Check Plan for HF Management (AHA, 2019). These are simple resource tools that can be used to reinforce nursing knowledge on HF patient self-care practices. This tool can be used via the TB method, which is an effective way to determine if an education material was understood. TB method is comprised of having the participant explain the instructions in their perspective. The educator can clarify and delineate any information missed. TB assists in reducing hospital readmission for HF patients (Ekong et al., 2016). TB allows the participant to be engaged to the educator and assess their knowledge. Main highlights of TB are to facilitate learning through reinforcement and recognized any areas that need clarification. Nurses were able to reinforce knowledge on self-care practices. The project identifies which areas the participant review and attend to was standardization of HF self-care practices, nutrition, HF medication and determining symptoms of HF this sentence is confusing. Dr. Fink asks what areas need more education. Please address this with a brief discussion. HF standardization in practice, medication and nutrition HF knowledge should be addressed in another study.

Contribution of the Doctoral Project Team

Interdisciplinary team dynamics was used for this project. Each project member had a role and provide strategy in conducting process. The project team included are nurse managers, staff nurses and nurse educators. The project team was aware of the timeline and details of the project. The detailed information of the project was distributed via email. The nurse managers promoted the information about the project during staff

meetings. The educator assisted in communication with the IRB and guided this author through the process, planning and scheduling of the classes. The staff nurses were the participants who answered the pre and post survey. The staff nurses were able to give input regarding their experience and what areas that need to focus on. The nurses gave positive and constructive feedback on promoting education programs and that the survey was effective. The DNP project can be implemented in the different areas in the institution, patient home visits by transitional care, outpatient clinics and ambulatory centers. The project team was instrumental with the application of HF self-care practices in their areas.

Strength and Limitations of the Project

In a previous study done by T. Mahramus et al., 2014, there was a considerable increase in scores after the educational intervention. The increase in the scores to the post-test may indicate that the participants are more familiar with the survey. Reinforcement education may be beneficial to sustain knowledge. Nurses are patient educators and it is critical to maintaining nurses knowledge in HF self-care practices (Ekong et al., 2016). The post-survey scores were 20% higher than that of the pre-survey scores deeming that the educational intervention to be successful. The idea for using online data collection was beneficial to lessen the time on manual collection. The limitation of the study was the small sample size, and constraints in the scheduling of the nurses to attend the education intervention. For future projects it would be beneficial if there were a larger sample size to improve the impact of the study. It would beneficial if other units in the institution could participate to provide more generalization for the

project findings. There are findings that HF self-care may improve the patient's quality of life and decrease readmission, and more clinical research should be conducted to work toward this goal (Ekong et al., 2016).

Empowering nurses by education on HF self-care practices to implement standardization in practices, develop evidence-based practices and collaborate with other disciplines are some of the goals of this project in the future. Nurses should be willing to participate in educational programs outside their institutions and join accredited nursing associations. Nurses have an opportunity to participate learn new practices and implement this in their institutions. Further advancement for nurses may be additional education by reading journals and aiming for certification for the Association of Heart Failure Nurses. It is vital to the institution to develop opportunities for nurse leaders, nurse educators and empower skillful nurses to develop engagement and growth.

Section 5: Dissemination Plan

This project was intended to increase the nurses' knowledge and improve the quality of care in the institution. It would be beneficial if each nurse participated in and provided their opinion regarding educational intervention. Providing nurses with the knowledge to improve patient outcomes should be one of the main focuses of the institution.

The nurses who would benefit from this project would be medical floor nurses who, before discharging patients, can apply simple teaching methods. Transitional nurses should also conduct house visits to assess whether the patient has retained the hospital education and if there are any positive behavior changes. Ambulatory nurses in clinics should be able to healthy HF self-care practices to the patient. The continuum of care from the hospital to the community can assure that the patient is knowledgeable about the disease and willing to conform to healthy practices even after being hospitalized.

Analysis of Self

I was thankful that I had two progressive mentors who have influenced my professional growth. Each mentor had a different approach to leadership. They are both educators with responsibility for teaching nurses clinical knowledge. I believe there is more to learn, and the process of professional growth does not end. Each individual has the opportunity to broaden their knowledge in their profession. As a case manager I was able to identify the nurse's knowledge needs and what tools would benefit the institution in teaching HF self-care practices. Nurses are at forefront in educating patients, especially during discharge. My long-term goals are continuing with my postgraduate certification

in Acute Care Nurse Practitioner. I am also considering part-time teaching. I plan to further improve HF self-care strategies on other medical units, in outpatient clinics, and ambulatory service clinics at the project site. There were several instances when I thought I may not continue my project. Finding a facility to conduct my project was initially challenging. During that time, the institution I was working for was going through a significant transition. The hospital did not have any contracts with Walden University; therefore, I had to find another facility to implement my project. I changed positions four times in the span of my DNP program. There were times that I had to sacrifice a full-time job to accommodate my clinical hours. I developed resilience in meeting the challenges and overcoming difficult circumstances. Looking for a practicum site was another barrier because of the constraints of time, a full-time job, and finishing practicum hours. I was able to find a facility that was willing to consider my project. The manager of the unit was accommodating and supportive of the project. The nurses in both units were considerate and willing to participate. Communication and promoting the project is crucial to the success of the implementation. I learned to be proactive, open to change, and to receive constructive criticism. My DNP journey has been positive for my growth, and I now look at the negative situations as opportunities to learn.

Summary

The findings from this project contribute to supporting nursing education interventions as effective in improving nurses' knowledge of HF self-care practices. NKHFEP is an effective tool to assess the nurse's knowledge of evidence-based practices for treating HF. The NKHFEP tool is placed in Appendix A, B and C. The strengths of

this project were using the online tool for data collection and presenting resource materials before educational intervention. The online tool used for the pretest was easily accessible by the nurses and results were immediate. Limitations of the doctoral study were the small sample size and constraints of scheduling the education intervention.

HF has been one of the highest rates of readmission and expense for Medicare beneficiaries (Ekong et al., 2016). Nurses spend much time with the patient, and have the best opportunity to educate patients regarding self-care practices. Self-care is an effective way to improve patient outcomes and reduce readmission. Often nurses may not have the proper knowledge of HF self-care practices. Health literacy is crucial for HF patients because adherence to regimens, medication management, and lifestyle impact patient outcomes (Como, 2018). Nurses must have proper knowledge of HF self-care practices to teach patients effectively. Education intervention, knowledge reinforcement, and continuing education are essential for nurses to be successful in their practice. This project showed that the evidence-based project was important for improving the knowledge of nurses, supporting the institution, and promoting positive patient outcomes.

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Appendix A: Nurse Knowledge of Heart Failure Education Principles Survey

Cleveland Clinic

Nurses Knowledge of Heart Failure Education Principles Survey

ANSWER KEY

Dear Nurse:

The attached survey was designed to assess your education needs related to self-management of heart failure. Specifically, we wish to learn your education needs in instructing patients about taking care of themselves in their homes (either after hospital discharge, or in general).

Please complete the following 20 item **yes (true)** / **no (false)** survey to help us determine your needs.

Instructions:

Please answer each question by placing an **X** in the yes or no answer box. If you would like more information on the topic in the question, place an **X** in the box to the left of each question marked *Need more Info on Subject?* If you do not know the correct answer, give us your best guess but please answer every question, even if you requested more information.

Cleveland Clinic

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Please answer each question by placing an **X** in the yes or no answer box. If you would like more information on the topic in the question, place an **X** in the box to the left of each question marked *Need more Info on Subject?* If you do not know the correct answer, give us your best guess but please answer every question, even if you requested more information.

Need more Info on subject?	Question	Yes (T)	No (F)
	ANSWER KEY		
☐	1. Patients with heart failure should drink plenty of fluids each day.	☐	☒
☐	2. As long as no salt is added to foods, there are no dietary restrictions for patients with heart failure.	☐	☒
☐	3. Coughing and nausea/poor appetite are common symptoms of advanced heart failure.	☒	☐
☐	4. Patients with heart failure should decrease activity and most forms of active exercise should be avoided.	☐	☒
☐	5. If the patient gains more than 3 pounds in 48 hours without other heart failure symptoms, they should not be concerned.	☐	☒
☐	6. Swelling of the abdomen may indicate retention of excess fluid due to worsening heart failure.	☒	☐
☐	7. If patients take their medications as directed and follow the suggested lifestyle modifications, their heart failure condition will not return.	☐	☒
☐	8. When patients have aches and pains, aspirin and non-steroidal anti-inflammatory drugs (NSAIDs like ibuprofen) should be recommended.	☐	☒
☐	9. It is OK to use potassium-based salt substitutes (like No-Salt or Salt Sense) to season food.	☐	☒
☐	10. If patients feel thirsty, it is OK to remove fluid limits and allow them to drink.	☐	☒
☐	11. When a patient adds extra pillows at night to relieve shortness of breath, this does not mean that the heart failure condition has worsened.	☐	☒
☐	12. If a patient wakes up at night with difficulty breathing, and the breathing difficulty is relieved by getting out of bed and moving around, this does not mean that the heart failure condition has worsened.	☐	☒
☐	13. Lean deli meats are an acceptable food choice as part of the patient's diet.	☐	☒
☐	14. Once the patient's heart failure symptoms are gone, there is no need for obtaining daily weights.	☐	☒
☐	15. When assessing weight results, today's weight should be compared with the patient's weight from yesterday, not the patient's ideal or dry weight.	☐	☒

The following 5 statements are signs and symptoms that patients may have. Please mark yes or no to reflect if the patient ***should notify their heart failure physician of these symptoms:***

Need more Info on subject?		Yes	No
	ANSWER KEY		
☐	16. BP recording of 80/56 without any heart failure symptoms.	☐	☒
☐	17. Weight gain of 3 pounds in 5 days without symptoms.	☒	☐
☐	18. Dizziness or lightheadedness when arising that disappears within 5 minutes.	☐	☒
☐	19. New onset or worsening of fatigue.	☒	☐
☐	20. New onset of worsening leg weakness or decreased ability to exercise.	☒	☐

THANK YOU for completing this survey.

Appendix B: Analysis of Presurvey Score According to Difficulty Ranking

QUESTIONS (20)–	**DIFFICULTY**	**AVERAGE SCORE**
Q16 BP recording of 80/56 without any heart failure symptoms.	1	18%
Q15 When assessing weight results, today's weight should be compared with the patient's weight from yesterday, not the patient's ideal or dry weight.	2	28%
Q18 Dizziness or lightheadedness when arising that disappears within 5 minutes.	3	46%
Q8 When patients have aches and pains, aspirin and non-steroidal anti-inflammatory drugs (NSAIDS like ibuprofen) should be recommended.	4	62%
Q9 It is OK to use potassium-based salt substitutes (like No-Salt or Salt Sense) to season food.	4	62%
Q3 Coughing and nausea/poor appetite are common symptoms of advance heart failure.	6	64%
Q13 Lean deli meats are an acceptable food choice as part of the patient's diet.	7	69%
Q4 Patients with heart failure should decrease activity and most forms of active exercise should be avoided.	8	74%
Q6 Swelling of the abdomen may indicate retention of excess fluid due to worsening heart failure.	9	79%
Q17 Weight gain of 3 pound in 5 days without symptoms.	10	82%

QUESTIONS (20)–	DIFFICULTY	AVERAGE SCORE
Q7 If patients take their medications as directed and follow the suggested lifestyle modifications, their heart failure condition will not return.	10	82%
Q12 If a patient wakes up at night to relieve shortness of breath, this does not mean that the heart failure condition has worsened.	12	85%
Q11 When a patient adds extra pillows at night to relieve shortness of breath, this does not mean that the heart failure condition has worsened.	12	85%
Q5 If the patient gains more than 3 pounds in 48 hours without other heart failure symptoms, they should not be concerned.	12	85%
Q2 As long as no salt is added to foods, there are no dietary restrictions for patient with heart failure.	15	95%
Q10 If patients feel thirsty, it is OK to remove fluid limits and allow them to drink.	16	97%
Q1 Patients with heart failure should drink plenty of fluids each day.	17	100%
Q14 Once the patient's heart failure symptoms are gone, there is no need for obtaining daily weights.	17	100%
Q19 New onset or worsening of fatigue.	17	100%
Q20 New onset of worsening leg weakness or decreased ability to exercise	17	100%

Appendix C: Analysis of Postsurvey Score According to Difficulty Ranking

QUESTIONS (20)–	DIFFICULTY	AVERAGE SCORE
Q18 Dizziness or lightheadedness when arising that disappears within 5 minutes.	1	77%
Q5 If the patient gains more than 3 pounds in 48 hours without other heart failure symptoms, they should not be concerned.	2	83%
Q15 When assessing weight results, today's weight should be compared with the patient's weight from yesterday, not the patient's ideal or dry weight.	3	93%
Q17 Weight gain of 3 pound in 5 days without symptoms.	3	93%
Q16 BP recording of 80/56 without any heart failure symptoms.	3	93%
Q9 It is OK to use potassium-based salt substitutes (like No-Salt or Salt Sense) to season food.	3	93%
Q8 When patients have aches and pains, aspirin and non-steroidal anti-inflammatory drugs (NSAIDS like ibuprofen) should be recommended.	7	97%
Q12 If a patient wakes up at night to relieve shortness of breath, this does not mean that the heart failure condition has worsened.	7	97%
Q14 Once the patient's heart failure symptoms are gone, there is no need for obtaining daily weights.	7	97%
Q1 Patients with heart failure should drink plenty of fluids each day.	7	97%

QUESTIONS (20)–	DIFFICULTY	AVERAGE SCORE
Q10If patients feel thirsty, it is OK to remove fluid limits and allow them to drink.	11	100%
Q11 When a patient adds extra pillows at night to relieve shortness of breath, this does not mean that the heart failure condition has worsened.	11	100%
Q3 Coughing and nausea/poor appetite are common symptoms of advance heart failure.	11	100%
Q4 Patients with heart failure should decrease activity and most forms of active exercise should be avoided.	11	100%
Q13 Lean deli meats are an acceptable food choice as part of the patient's diet.	11	100%
Q6 Swelling of the abdomen may indicate retention of excess fluid due to worsening heart failure.	11	100%
Q19 New onset or worsening of fatigue.	11	100%
Q2 As long as no salt is added to foods, there are no dietary restrictions for patient with heart failure.	11	100%
Q20 New onset of worsening leg weakness or decreased ability to exercise	11	100%
Q7 If patients take their medications as directed and follow the suggested lifestyle modifications, their heart failure condition will not return.	11	100%